REMARKS

Reconsideration of the application is respectfully requested.

I. Status of the Claims

Claims 33-45 have been withdrawn.

Claims 6 and 22 have been cancelled without prejudice or disclaimer of the subject matter therein;

Claims 4, 7, 13, 14, 17, 20, 23 and 31 have been amended and the amendments do not add new matter.

Claims 46 and 47 have been added and no new matter has been added.

Claims 1-5, 7-21, 23-32, and 46-47 are pending and presented for examination.

Claims 6, 22, and 23 were objected to, claims 6 and 22 have been cancelled and claim 23 has been amended to overcome the objection. Applicants respectfully request that the objection be withdrawn.

II. Rejections under 35 U.S.C. § 112

Claims 6-16 and 22-32 are rejected under 35 U.S.C. § 112, second paragraph as indefinite. Applicants have cancelled claims 6 and 22, rendering the rejection moot.

Claims 7 and 23 have been amended to distinctly recite the different drive levels and impedance magnitudes.

Claims 13 and 14 have been amended to claim the difference being taken.

Claims 8-12, 15, 16, 24-28, 31, and 32 depend from the definite parent claims.

Applicants submit that the claims are definite and respectfully request that the rejection be withdrawn.

III. Rejections under 35 U.S.C. § 103(a)

Claims 1, 2, 4, 6, 17, 18, 20, and 22 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,042,460 to Sakurai et al. ("Sakurai") in view of JP Patent No. 06-003305 to Senda et al. ("Senda"), while claims 3, 5, 19, 17, and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of these references, and in further view of U.S. Patent No. 6,019,775 to Sakurai ("Sakurai '775"). Applicants respectfully traverse the rejections. Claim 17 has only been amended for clarity.

Independent claims 1 and 17 recite the elements of "applying a drive signal ... to an ultrasonic hand piece/blade ... [and] obtaining impedance magnitude data for the hand piece/blade while continuously driving the hand piece/blade with the drive signal." A drive signal is created by a drive system that creates the signal at a particular frequency and power. The drive system contains a microprocessor to monitor the power and vibration frequencies using, for example, phase correction algorithms. The drive system sweeps the drive signal until a frequency lock is detected. Further, the drive system continuously sweeps to adjust the drive signal to get a frequency lock. A continuous sweep is important because as the hand piece/blade operates, it heats up. Heat causes the resonance point to shift downwards in frequency. The drive system must continuously sweep for the frequency lock or the hand piece/blade will cease to operate. *See*, for example, Specification page 12, lines 12-19, page 14, lines 14-26 and page 15, lines 8-24. Thus, a "drive signal" as claimed must come from a "drive system" and is not just a power impulse from a generator. Claims

1 and 17 recite that the hand piece/blade is being continuously driven by the drive signal while the impedance data is being taken.

In contrast, Sakurai does not "obtain[] impedance magnitude data for the hand piece/blade while continuously driving the hand piece/blade with the drive signal." None of Sakurai's embodiments suggest or disclose this element.

Sakurai distinguishes between a drive signal and just power to the hand piece/blade. Sakurai discloses a:

> drive circuit 5 is operated in accordance with an instruction of a CPU 10 as will be set forth in more detail below and a driving electric power is applied across output terminals 5a and 5b so that the ultrasonic vibration element may be driven. ... By doing so, the ultrasonic vibration element 2 is driven to generate ultrasonic vibrations from the ultrasonic vibration element 2.

Sakurai, column 3, lines 8-12 and column 4, lines 50-52. Further, Sakurai defines his "impedance detection circuit 11" as comprising, among other things, "an AC power source 12 for supplying an AC voltage to the output terminals 11a, 11b" which in turn power ultrasonic vibration element 2 on the basis of the position of switches 7a, 7b. Impedance detection circuit 11 also includes all the elements to compute the impedance of ultrasonic vibration element 2. Sakurai, column 3, lines 33-46 and Figures 1 and 3. AC power source 12, if used to continuously power the hand piece/blade, will cause the hand piece/blade to fail. During operation the hand piece/blade heats up causing the frequency to drop and the change must be accounted for. Since AC power source 12 cannot sweep for frequencies, it cannot account for the normal heat generated during use and the operation of the hand piece/blade must fail. Applicants submit that Sakurai can only produce the claimed drive signal at drive circuit 5 and that AC power source 12 can only supply power and not a drive signal as claimed.

None of Sakurai's embodiments allow the impedance to be tested while a drive signal is continuously being supplied to the ultrasonic vibration element 2. For example, in Figure 1, drive circuit 5 sends a drive signal to ultrasonic vibration element 2 when switches 7a and 7b are ON (in the "top" position relative to Figure 1). Sakurai tests for the impedance by switching switches 7a and 7b OFF (the "bottom" position as illustrated in Figure 1). Once switches 7a and 7b are OFF, a drive signal from drive circuit 5 cannot reach ultrasonic vibration element 2. Only power generated from AC power source 12 reaches ultrasonic vibration element 2. *See*, Sakurai, column 3, lines 46-68 and column 4, lines 40-52. As submitted above, AC power source 12 cannot provide a drive signal. Thus, ultrasonic vibration element 2 is not continuously driven by a drive signal once the AC power source 12 is switched into the circuit.

Sakurai's circuit is essentially the same for Figure 3, which discloses a "burst" embodiment. Again, the drive signal generated by drive circuit 5 is interrupted when switches 7a, 7b are switched OFF to allow AC power source 12 to be connected to ultrasonic vibration element 2 to find the impedance. *See*, Sakurai, column 5, lines 46-68. Thus, this embodiment cannot "continuously driv[e] the hand piece/blade with the drive signal" while "obtaining impedance magnitude data for the hand piece/blade." Furthermore, the remaining embodiments disclosed in Sakurai disclose similar circuits and thus Sakurai does not teach or suggest the "obtaining impedance magnitude data for the hand piece/blade while continuously driving the hand piece/blade with the drive signal."

Senda has been introduced to cure the deficiencies of Sakurai. However, Senda fails to teach or suggest, *inter alia*, the step of "obtaining impedance magnitude data for [a] hand piece/blade while continuously driving the hand piece/blade with [a] drive signal." As a result, the

system achieved by the combination of Senda and Sakurai fails to achieve the invention as set forth and claimed in independent claims 1 and 17.

Sakurai '775 also fails to cure the deficiency of the system comprising Sakurai and Senda. Specifically, Sakurai '775 also fails to teach the step of "obtaining impedance magnitude data for [a] hand piece/blade while continuously driving the hand piece/blade with [a] drive signal." Therefore, Applicants respectfully assert that the combined references, whether considered individually or in combination, fail to teach or suggest the invention as set forth in amended independent claims 1 and 17. In view of the patentability of amended independent claims 1 and 17, for the reasons above, dependent claims 2-5, 7-16, 18-21, 23-32, and 46-47 are also patentable over the prior art.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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